

Introduction

This Guide was developed to provide helpful information for applying the LEED-NC rating system to build better buildings in Colorado. This section provides information to get you started: an introduction to the U.S. Green Building Council and the LEED rating system, an introduction to LEED Certified projects in Colorado, and information about how to use this Guide.



CH2M HILL Denver Campus

Three LEED-NC Certified buildings: North, South & West Buildings

Courtesy: CH2M HILL

Getting Started: USGBC & LEED

United States Green Building Council

The U.S. Green Building Council (USGBC) is a nonprofit organization working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The USGBC represents thousands of sustainable building industry volunteers working through committees to provide green building guidance, products and resources. Through this volunteer effort, the USGBC created the LEED® Green Building rating system as a tool to transform the building market. In support of LEED and market transformation, the USGBC offers green building educational resources through workshops, programs, study guides, product listings, etc. The USGBC Colorado Chapter also works towards the adoption of policies and educational tools for sustainable building practices within Colorado. For more information on LEED and other green building resources please visit the USGBC website at www.usgbc.org and the Colorado Chapter website at www.usgbc.org/Chapters/colorado.

LEED: Leadership in Energy and Environmental Design

The LEED rating system is a market driven, green building rating system designed to facilitate the development of high performance and environmentally responsible buildings.

USGBC now has three LEED rating systems available:

- New Construction and Major Renovation projects (LEED-NC)
- Existing Buildings (LEED-EB)
- Commercial Interiors (LEED-CI)

Three additional rating systems are in the Pilot phase of development:

- Core and Shell (LEED-CS)
- Homes (LEED-H)
- Neighborhood Development (LEED-ND)

This Guide focuses on the LEED-NC Version 2.1 rating system. This rating system allows up to 69 points for implementing strategies in six areas:

- Sustainable Sites (5 possible points)
- Water Efficiency (5 possible points)
- Energy and Atmosphere (17 possible points)
- Materials and Resources (13 possible points)

- Indoor Environmental Quality (15 possible points)
- Innovation and Design (5 possible points)

Projects are awarded a certification level depending on the number of points achieved:

- Certified 26 to 32 points,
- Silver 33 to 38 points,
- Gold 39 to 51 points, or
- Platinum 52 or 69 points.

Project teams using other LEED rating systems will find useful information within *Using LEED-NC in Colorado*, as the other LEED rating systems are based, to some degree, on LEED-NC.

Remember, It's Not About the Points

The LEED rating system is intended to help the design team consider effective energy efficient and environmentally preferable features. Ensure that the design team is not pursuing ineffective strategies solely to garner additional points. Focus first on good design, rather than the points.

Costs and Benefits of LEED

Research has shown that high performance design buildings provide a variety of benefits including improved learning, occupant health and satisfaction, and lower energy and water costs. Refer to Appendix D for information and links to many examples of this research.

How cost effective is LEED-NC in Colorado?

The Governor's Office of Energy Management & Conservation launched a targeted research effort in 2006 to address this question. This information will be available in late 2006, online at www.colorado.gov/rebuildco.

About this Guide

Using LEED-NC in Colorado: Tips, Resources and Examples provides helpful credit-by-credit guidance to applying the LEED-NC version 2.1 (v2.1) rating system in Colorado, as a complement to the official information from USGBC.

To learn about the LEED-NC v2.1 rating system, begin by obtaining the official information about from USGBC at www.usgbc.org/leed:

- LEED-NC v2.1 Rating System and Errata (free download)
- LEED-NC v2.1 Checklist (free download)
- LEED-NC v2.1 Reference Guide (available for purchase)
- LEED-NC Credit Interpretation Rulings (CIRs) (available to USGBC members or registered project teams)
- LEED-Online: a new feature that allows project teams to submit documentation online for v2.1 now, and other rating systems soon

Using LEED-NC in Colorado presents the following information for each credit:

- **Brief Description** of the credit,
- **Recommendations** for pursuing the credit,
- **Helpful Hints** from lessons learned,
- **Examples** from Colorado projects, and
- **Resources** including links to referenced standards and Colorado-specific organizations and resources,
- **Quick Facts** box with implementation recommendation and historical data.

The **implementation** rating shown in the Quick Facts box is one of the following:

- **Required:** Prerequisites
- **Strongly Recommended:** Easily achievable for most Colorado projects
- **Recommended:** Achievable for some Colorado projects, or
- **Worth Considering:** Rarely achievable for Colorado projects, but still worth considering.

The **Historical Data** shown in the Quick Facts box shows the percentage of projects that have achieved this credit. The projects included in this calculation are the 14 Colorado projects that were certified under LEED-NC version 2, as listed by USGBC in December 2005. (Aspen Skiing Company's Sundeck Restaurant was

certified under version 1 and thus is not included in the historical data.)

What's New in 2.2?

Most existing projects are registered under LEED-NC version 2.1. Yet, any new projects registered after December 31, 2005, will use LEED-NC version 2.2. What are the changes from version 2.1 to version 2.2?

The USGBC reports that *nearly every credit has been altered in some way!* Refer to the USGBC LEED-NC version 2.2 Reference Guide for details. For a quick overview of the changes, see Appendix C of this Guide.

Downloads, Comments, Corrections?

To download a free version of this Guide, provide input to the authors or to check for future versions of this Guide, visit the *Rebuild Colorado* website at www.colorado.gov/rebuildco.

LEED Certified Projects in Colorado

The growing experience with LEED in Colorado provides a wealth of cost-effective strategies and locally available materials. Highlights from many of these projects are included in *Using LEED-NC in Colorado*. All LEED-NC certified projects in Colorado through 2005 are pictured and listed in this section. There are a total of 15 LEED-NC certified projects, including the Gold certified University of Denver Frank H. Ricketson Jr. Law Building.

Refer to Appendix A of this Guide for a detailed list of credits achieved by these projects and Appendix B for an at-a-glance list.

In addition to LEED-NC projects, there are now LEED-EB and LEED-CI projects coming online in Colorado. This includes Amerimar Realty's LEED-EB Gold certified Denver Place and Boulder Associates LEED-CI Gold certified office.

LEED Certified Projects in Colorado (as of December 2005)

LEED for New Construction

Aspen Skiing Company
Snowmass Golf Clubhouse LEED-NC v2 Silver (2005)



Aspen Skiing Company
Sundeck Restaurant LEED-NC v1 Bronze (2000)



Boulder, City of
North Boulder Recreation Center LEED-NC v2 Silver (2003)



Boulder Community Hospital
Foothills Hospital LEED-NC v2 Silver (2003)



CH2M HILL - Three Certified buildings
North, South & West LEED-NC v2 Certified (2003- 2004)



Colorado College
Tutt Science Center LEED-NC v2 Certified (2005)



Colorado Springs Utilities
Laboratory LEED-NC v2 Silver (2005)



Colorado Department of Labor & Employment
CDLE Office Addition LEED-NC v2 Certified (2005)



LEED for New Construction (*continued*)

Continuum Partners, LLC
Belmar Building 2M3

LEED-NC v2 Silver (2005)



Pikes Peak Regional Development Center
Regional Building Department LEED-NC v2 Silver (2005)



Poudre School District
Fossil Ridge High School

LEED-NC v2 Silver (2005)



Opus Northwest Construction
U.S. Dept. of Transportation LEED-NC v2 Silver (2004)



University of Denver
Ricketson Law Building

LEED-NC v2 Gold (2005)



LEED for Commercial Interiors

Boulder Associates
Boulder Associates Office

LEED-CI v2 Gold (2005)



LEED for Existing Buildings

Amerimar Realty Company
Denver Place N/S Towers LEED-EB pilot (2004)



Historical Data for LEED-NC Certified Colorado Projects

The following table presents the percent of Colorado LEED-NC version 2 certified projects that have achieved each credit. This data includes the 14 projects certified as of December 2005. Refer to Appendix A for a list of credits achieved by project.

LEED-NC Credit	Credit Name	LEED Points Possible	Projects Achieving this Credit
Sustainable Sites (14 Points Possible)			
<i>SSp1</i>	<i>Erosion & Sedimentation Control</i>	<i>Required</i>	
SSc1	Site Selection	1	71%
SSc2	Urban Redevelopment	1	14%
SSc3	Brownfield Redevelopment	1	7%
SSc4.1	Alternative Transport., Public Transportation Access	1	71%
SSc4.2	Alternative Transport., Bicycle Storage & Changing Rooms	1	93%
SSc4.3	Alternative Transport., Alternative Fuel Refueling Stations	1	29%
SSc4.4	Alternative Transport., Parking Capacity	1	43%
SSc5.1	Reduced Site Disturbance, Protect or Restore Open Space	1	7%
SSc5.2	Reduced Site Disturbance, Development Footprint	1	71%
SSc6.1	Stormwater Management, Rate or Quantity	1	21%
SSc6.2	Stormwater Management, Treatment	1	57%
SSc7.1	Landscape & Ext Design to Reduce Heat Islands, Non-Roof	1	50%
SSc7.2	Landscape & Ext Design to Reduce Heat Islands, Roof	1	43%
SSc8	Light Pollution Reduction	1	50%
Water Efficiency (5 Points Possible)			
WEc1.1	Water Efficient Landscaping, reduce by 50%	1	79%
WEc1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1	36%
WEc2	Innovative Wastewater Technologies	1	0%
WEc3.1	Water Use Reduction, 20% Reduction	1	64%
WEc3.2	Water Use Reduction, 30% Reduction	1	29%
Energy & Atmosphere (17 Points Possible)			
<i>EAp1</i>	<i>Fundamental Building Systems Commissioning</i>	<i>Required</i>	
<i>EAp2</i>	<i>Minimum Energy Performance</i>	<i>Required</i>	
<i>EAp3</i>	<i>CFC Reduction in HVAC&R Equipment</i>	<i>Required</i>	
EAc1.1	Optimize Energy Performance, 20% New / 10% Existing	2	100%
EAc1.2	Optimize Energy Performance, 30% New / 20% Existing	2	75%
EAc1.3	Optimize Energy Performance, 40% New / 30% Existing	2	29%
EAc1.4	Optimize Energy Performance, 50% New / 40% Existing	2	11%
EAc1.5	Optimize Energy Performance, 60% New / 50% Existing	2	7%
EAc2.1	Renewable Energy, 5%	1	0%
EAc2.2	Renewable Energy, 10%	1	0%
EAc2.3	Renewable Energy, 20%	1	0%
EAc3	Additional Commissioning	1	93%
EAc4	Ozone Depletion	1	36%
EAc5	Measurement & Verification	1	43%
EAc6	Green Power	1	57%

Historical Data for LEED-NC Certified Colorado Projects (*continued*)

LEED-NC Credit	Credit Name	LEED Points Possible	Projects Achieving this Credit
Materials & Resources (13 Points Possible)			
<i>MRp1</i>	<i>Storage & Collection of Recyclables</i>	<i>Required</i>	
MRc1.1	Building Reuse, Maintain 75% of Existing Shell	1	7%
MRc1.2	Building Reuse, Maintain 100% of Shell	1	0%
MRc1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell	1	0%
MRc2.1	Construction Waste Management, Divert 50%	1	86%
MRc2.2	Construction Waste Management, Divert 75%	1	14%
MRc3.1	Resource Reuse, Specify 5%	1	14%
MRc3.2	Resource Reuse, Specify 10%	1	7%
MRc4.1	Recycled Content, Specify 25%	1	79%
MRc4.2	Recycled Content, Specify 50%	1	71%
MRc5.1	Local/Regional Materials, 20% Manufactured Locally	1	100%
MRc5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally	1	100%
MRc6	Rapidly Renewable Materials	1	0%
MRc7	Certified Wood	1	0%
Indoor Environmental Quality (15 Points Possible)			
<i>EQp1</i>	<i>Minimum IAQ Performance</i>	<i>Required</i>	
<i>EQp2</i>	<i>Environmental Tobacco Smoke (ETS) Control</i>	<i>Required</i>	
EQc1	Carbon Dioxide (CO2) Monitoring	1	50%
EQc2	Increase Ventilation Effectiveness	1	36%
EQc3.1	Construction IAQ Management Plan, During Construction	1	71%
EQc3.2	Construction IAQ Management Plan, Before Occupancy	1	71%
EQc4.1	Low-Emitting Materials, Adhesives & Sealants	1	100%
EQc4.2	Low-Emitting Materials, Paints	1	79%
EQc4.3	Low-Emitting Materials, Carpet	1	100%
EQc4.4	Low-Emitting Materials, Composite Wood	1	29%
EQc5	Indoor Chemical & Pollutant Source Control	1	79%
EQc6.1	Controllability of Systems, Perimeter	1	14%
EQc6.2	Controllability of Systems, Non-Perimeter	1	0%
EQc7.1	Thermal Comfort, Comply with ASHRAE 55-1992	1	71%
EQc7.2	Thermal Comfort, Permanent Monitoring System	1	36%
EQc8.1	Daylight & Views, Daylight 75% of Spaces	1	14%
EQc8.2	Daylight & Views, Views for 90% of Spaces	1	57%
Innovation & Design Process (5 Points Possible)			
IDc1.1	Innovation in Design	1	100%
IDc1.2	Innovation in Design	1	79%
IDc1.3	Innovation in Design	1	79%
IDc1.4	Innovation in Design	1	57%
IDc2	LEED Accredited Professional	1	100%

Source: Compiled from USGBC website www.usgbc.org/leed